

What is claimed is:

1. A non-human transgenic animal whose genome comprises a nucleotide sequence encoding human CD20.
2. The transgenic animal of claim 1 wherein said nucleotide sequence is operably linked to a human endogenous promoter.
3. The transgenic animal of claim 2 whose cells express human CD20.
4. The transgenic animal of claim 3 wherein human CD20 is expressed on the surface of B lymphocytes.
5. The transgenic animal of claim 3 wherein human CD20 is expressed on the B lymphocytes at a level sufficient for anti- human CD20 antibody bound to the expressing cells to affect killing of the cells, resulting in B cell depletion.
6. The transgenic animal of claim 1 wherein the genome of said animal contains a disruption in an endogenous gene encoding a CD20 molecule substantially homologous to human CD20.
7. The transgenic animal of claim 6, wherein the endogenous gene encodes a murine CD20.
8. A method of identifying an agent capable of treating a B cell lymphoma said method comprising:
  - a) measuring the level of B lymphocytes expressing human CD20 in an animal of claims 1 or 6;
  - b) administering said agent to the animal of claims 1 or 6; and
  - c) measuring the level of B lymphocytes expressing human CD20 in the animal;wherein a decrease in the number of B lymphocytes expressing human CD20 in the animal after treatment with the agent identifies the agent capable of treating a B cell lymphoma.

9. An agent identified according to claim 8.
10. A method of identifying an agent capable of depleting or killing cells expressing human CD20 said method comprising:
  - a) measuring the level of B lymphocytes expressing human CD20 in an animal of claims 1 or 6 ;
  - b) administering said agent to the animal of claims 1 or 6; and
  - c) measuring the level of B lymphocytes expressing human CD20 in the animal;wherein a decrease in the number of B lymphocytes expressing human CD20 in the animal identifies the agent as capable of depleting or killing cells expressing CD20.
11. The method of claim 10 wherein said cells are cancer cells.
12. An agent identified according to claim 11.
13. A cell or tissue derived from the transgenic animal of claim 1 or 6.
14. The transgenic animal of claim 1 or 6 wherein said animal is a rodent.
15. The transgenic animal of claim 14 wherein said rodent is a mouse.
16. A method of testing safety of anti- human CD20 therapy, said method comprising:
  - a) measuring the level of B lymphocytes expressing human CD20 in an animal of claims 1 or 6 ;
  - b) administering said agent to the animal of claims 1 or 6; and
  - c) measuring the level of B lymphocytes expressing human CD20 in the animal;wherein a decrease in the number of B lymphocytes expressing human CD20 in the animal identifies the agent as capable of depleting or killing cells expressing CD20;

- d) monitoring the animal for short or long term adverse effects.

17. A method of testing efficacy of anti- human CD20 therapy, said method comprising:

- a) measuring the level of B lymphocytes expressing human CD20 in a set of animals of claims 1 or 6 ;
- b) administering to each animal of the set a different dose of an agent; and
- c) measuring the level of B lymphocytes expressing human CD20 in the animal after each dose;and
- d) determining at least one dose of the agent that results in the most B cell depletion.